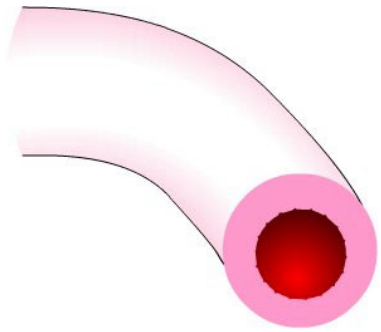
X-Plain™
Vasculitis
Reference Summary

Vasculitis is a group of diseases that causes blood vessels to become inflamed.

In some vasculitis diseases, inflammation is the main problem, while in others vasculitis is just part of the disease.

This reference summary will help you understand vasculitis. It discusses the anatomy, symptoms, causes, diagnosis, and treatment of vasculitis.

Blood Vessels
Blood vessels are tube-like structures that carry blood through the body. The blood vessels of the body together are called the vascular system.



Blood rich in oxygen leaves the left part of the heart and enters the aorta, the biggest artery of the body. The aorta divides into smaller arteries that go to the brain, arms, intestines, pelvis, and legs.

Small arteries divide into even smaller arteries called arterioles. Arterioles divide into the smallest blood vessels of the body, the capillaries.

In capillaries, blood releases oxygen, glucose, and other nutrients and picks up carbon dioxide.

The capillaries join together to form venules, very small veins. Venules join together to form small veins.

Small veins join other veins to form the biggest veins of the body, the inferior and superior vena cava.

Blood, poor in oxygen and rich in carbon dioxide, enters the right side of the heart.

It leaves the right side of the heart through the pulmonary artery, traveling to the lungs through smaller arteries, arterioles, and capillaries.

In the lung capillaries, the blood releases carbon dioxide and picks up oxygen before it goes back through venules and veins to the left side of the heart. Finally, it returns to the aorta.

The difference between arteries and veins is that arteries have thicker walls and are more elastic.

Vasculitis
Vasculitis is the inflammation of the blood vessels. Inflammation may be the body's response to infection, trauma, or disease.

Inflammation of the blood vessels can cause them to narrow, blocking blood flow. It can also cause the walls of the blood vessels to become painful, red, and tender.

Depending on the disease, vasculitis can affect various blood vessels. When arteries are the inflamed blood vessels, the condition is also called arteritis.

Vasculitis can affect blood vessels in various organs such as the brain, kidneys, and lungs.

Vasculitis is a group of diseases of the blood vessels.

The diseases differ according to:

- the blood vessels involved
- the organs involved
- the main cause, if known

Causes
Vasculitis is thought to be a disease of the immune system. The immune system is made of special blood cells and chemicals that identify and destroy foreign material,

Cells of the immune system are called white blood cells. They destroy foreign material including viruses and bacteria.

There are two kinds of white blood cells: T-cells and B-cells. When T-cells identify a foreign material or organism, they attack it.

When B-cells identify a foreign material, they secrete special chemicals called antibodies. These antibodies stick to the foreign material and cause it to die.

Vasculitis may occur when the immune system mistakes chemicals in the blood vessels for foreign materials. The immune system then attacks the blood vessels and damages them. It is not known what causes the immune system to malfunction.

Sometimes vasculitis happens as a reaction to specific substances injected in the blood, such as cocaine or amphetamine.

Vasculitis can accompany infections, such as hepatitis B. Hepatitis is a viral infection.

Some cancers and rheumatic diseases are associated with vasculitis.

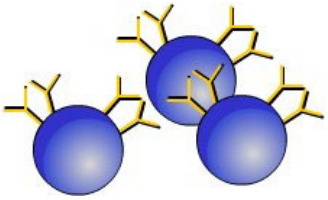
Symptoms
The symptoms of vasculitis vary depending on which organ is affected. For instance, if the brain is affected strokes, paralysis, and vision problems may occur.

The kidneys are responsible for cleaning waste and toxic materials out of the blood. When they are affected, their function declines, sometimes requiring dialysis. A dialysis machine acts like an artificial kidney.

There are different types of vasculitis such as:

- Kawasaki disease, which affects the mucus membranes and the heart
- Behcet's disease, which affects the mouth, eyes, and genital areas.
- Polyarteritis nodosa, which affects the skin, heart, kidneys, and nervous system.
- Wegener's granulomatosis, which mainly affects the respiratory tract.

Diagnosis
To diagnose vasculitis, blood tests are done to find signs of inflammation and antibodies. Antibodies are substances secreted by the cells of the immune system.



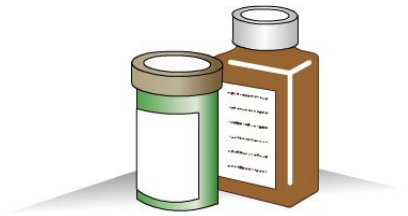
The doctor may surgically take a sample of a blood vessel to be examined under the microscope. This is called a biopsy.

Other blood tests and urine tests may be done to check the function of the involved organs.

An angiogram, a special dye x-ray of the blood vessels, may be needed to look at the arteries and veins.

X-rays, CAT scans[1], and MRIs[2] may be done to look at various organs of the body and see if they are affected.

Treatment
The treatment of vasculitis depends on what type it is. Stopping inflammation is a priority. This may be done with steroid medication, such as prednisone or dexamethasone.



Suppressing the immune system may also be done using medications such as cyclophosphamide.

Along with these medications, the affected organs must be treated. Patients may need a respirator if the lungs are affected. Dialysis may be needed if the kidneys quit working.

Summary

Vasculitis is a group of diseases that involves inflammation of the blood vessels.

Treatments to decrease inflammation and suppress the immune system are available.

Most patients with vasculitis live fairly normal lives!

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[1] CAT Scan or Computed Axial Tomography scan is a radiological test that provides pictures of structures inside the body by taking multiple X-ray images.

[2] MRI, or Magnetic Resonance Imaging, is a technique that allows the doctor to create pictures of areas inside the body by using a magnet linked to a computer.